WHAT IS CLAIMED IS:

1. A method for manufacturing a single crystal SiC on a substrate having a surface, comprising the steps of:

forming a thin single crystal SiC layer on the surface by heating the substrate under existence of a raw material containing C or C and Si; and

depositing SiC on the single crystal SiC layer by the vapor phase growth method or the liquid phase growth method;

the step of forming the single crystal SiC layer being carried out in the manner such that the raw material is supplied in the vicinity of the surface of the substrate, and that the raw material in the vicinity of the surface of the substrate is given a partial pressure higher at least by a predetermined rate than that of an impurity, thereby suppressing the impurity from reaching the surface of the substrate and preventing the surface of the substrate from being etched by the impurity.

2. A method as claimed in claim 1, wherein:

heating in the step of forming the single crystal SiC layer comprises a temperature elevating step of elevating the temperature of the substrate from a first temperature Te at which etching of the surface of the substrate by the impurity is started to a second temperature not lower than a temperature at which the single crystal SiC layer is formed, the temperature elevating step being carried out on such a condition that the partial pressure of the raw material is adjusted to a level not lower than 100 times that of the impurity, and

the temperature elevating step being carried out by selecting at least one of a temperature elevating rate and a temperature elevating time within a range such that the density and the size of a defect such as etch pits or dome-like protrusions is suppressed to prevent occurrence of a planar defect on SiC which is deposited on the single crystal SiC layer by the vapor phase growth

method or the liquid phase growth method.

3. A method as claimed in claim 1, wherein:

at least one material selected from the group consisting of C_nH_{2n} ($2 \leqq n \leqq 3$), C_nH_{2n+2} ($1 \leqq n \leqq 3$), C_nH_{2n-2} ($1 \leqq n \leqq 3$), CCl_4, CHF_3, and CF_4 is used as the material containing C and used in the step of forming the single crystal SiC layer.

4. A method as claimed in claim 1, wherein:

at least one material selected from the group consisting of SiH_2Cl_2, SiH_4, $SiCl_4$, $SiHCl_3$, Si_2H_6, and Si_2Cl_6 is used as the material containing Si and used in the step of forming the single crystal SiC layer in addition to the material containing C.

5. A method as claimed in claim 1, wherein:

at least one material selected from the group consisting of $Si(CH_3)_4$, $SiH_2(CH_3)_2$, $SiH(CH_3)_3$, $Si_2(CH_3)_6$, $(CH_3)_3SiCl$, and $(CH_3)_2SiCl_2$ is used as material containing C and Si used in the step for forming the single crystal SiC layer.

6. A single crystal SiC, wherein:

the single crystal SiC is obtained by a method claimed in any one of claims 1 through 5, and

the planar defect density of a topmost surface falls within a range not higher than $10^3/cm^{-2}$.

7. A single crystal SiC, comprising:

single crystal SiC obtained by a method claimed in any one of claims 1 through 5, and

another SiC deposited on the single crystal SiC by the vapor phase growth method or the liquid phase growth method.

8. A semiconductor device, wherein:

the semiconductor device comprises SiC having a predetermined concentration of dopant, and

the dopant is added by ion implantation into the single crystal SiC produced by a method claimed in claim 1.

9. A semiconductor device, wherein:

the semiconductor device comprises SiC having a predetermined concentration of dopant, and

the dopant is added into the SiC in the SiC deposition step claimed in claim 1.

10. A SiC composite material, comprising:

single crystal SiC produced by a method claimed in any one of claims 1 through 5, and

diamond or GaN formed on the single crystal SiC.